CLAIMS

- 1. A piezoelectric element comprising:
 - a substrate;
- a piezoelectric layer having a first surface and a second surface opposite to the first surface, the first surface facing the substrate, the piezoelectric layer having a thickness h;
- a first electrode arranged between the substrate and 10 the first surface of the piezoelectric layer; and
 - a second electrode held in contact with the second surface of the piezoelectric layer;

wherein one of the first electrode and the second electrode includes a common base and a plurality of parallel branches extending from the base, the branches being spaced from each other by a pitch λ , the other of the first electrode and the second electrode including a portion that faces the branches via the piezoelectric layer,

wherein the thickness h and the pitch λ are determined to satisfy an inequality $0.005{\le}h/\lambda{\le}0.1,$

wherein the first electrode has a hillock occurrence rate which is no greater than 0.1%.

2. The piezoelectric element according to claim 1, wherein the common base and the branches belong to the first electrode.

- 3. The piezoelectric element according to claim 1, wherein the first electrode is formed of an aluminum alloy containing $0.1\sim3.0$ wt% of a metal selected from a group consisting of Ti, Cr, Ni, Cu, Zn, Pd, Ag, Hf, W, Pt and Au.
- 4. The piezoelectric element according to claim 3, wherein the piezoelectric layer is formed of ZnO doped with Mn.

5. A touch screen comprising:

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- a substrate including a detection region and a marginal region surrounding the detection region;
 - a wave generator arranged in the marginal region for generating a surface acoustic wave in the substrate; and
- a wave receiver arranged in the marginal region for 15 receiving the surface acoustic wave;
 - each of the wave generator and the wave receiver comprising:
 - a piezoelectric layer having a first surface facing the substrate and a second surface opposite to the first surface, the piezoelectric layer having a thickness h;
 - a first electrode arranged between the substrate and the first surface of the piezoelectric layer; and
 - a second electrode held in contact with the second surface of the piezoelectric layer;
- wherein one of the first electrode and the second electrode includes a common base and a plurality of parallel branches extending from the base, the branches being spaced from each other by a pitch λ , the other of the first

electrode and the second electrode including a portion that faces the branches via the piezoelectric layer,

wherein the thickness h and the pitch λ are determined to satisfy an inequality $0.005{\le}h/\lambda{\le}0.1,$

- wherein the first electrode has a hillock occurrence rate which is no greater than 0.1%.
 - 6. The touch screen according to claim 5, wherein the common base and the branches belong to the first electrode.
- 7. The touch screen according to claim 5, wherein the first electrode is formed of an aluminum alloy containing 0.1~3.0wt% of a metal selected from a group consisting of Ti,

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8. The touch screen according to claim 7, wherein the piezoelectric layer is formed of ZnO doped with Mn.

Cr, Ni, Cu, Zn, Pd, Ag, Hf, W, Pt and Au.